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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WANG, JIN CHENG	
ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/439,225	SALDANHA ET AL.	
	Examiner	Art Unit	
	Jin-Cheng Wang	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/28/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed on 2/28/2005 has been entered. Claim 29 has been amended. Claims 1-45 are pending in the application.

Response to Arguments

Applicant's arguments filed Feb. 28, 2005 have been fully considered but are not found persuasive in view of the ground(s) of rejection set forth in the last Office Action.

As address below, the Claim 1 is unpatentable over Sakaguchi U.S. Patent No. 6,310,627 (hereinafter Sakaguchi).

For example, Sakaguchi teaches displaying a system and method for generating a three-dimensional image representing a stereoscopic shape of a garment when the garment is put on a three-dimensional object such as a person's figure. The system and method comprise generating a 3D image of an object model corresponding to the person's figure; inputting information on the person's figure and a try-on garment; arranging the images of the respective patterns of the garment in corresponding portions of the 3D image of the object model, three-dimensionally deforming the images of the respective patterns by calculating collisional deformations when the respective patterns are pressed against the corresponding portions based on the information on the garment, and generating a stereoscopic image of the garment by connecting the deformed 3D images of the respective patterns based on the information on the garment. Moreover, Sakaguchi teaches rendering the garment animation images on the three-dimensional character images and simulating a deformation in the garment caused by the collision of the human model and the

garment when the human model is moved (column 31, lines 21 to column 33, line 38). The collision and animation of the garment with respect to the human model correspond to the draping and collision of the garment with the mannequin wherein the patterns and deformation parameters affects the draping and collision of the garment with the human model.

Applicant argues that, "a shell should be a separate thing from the mannequin" and "Applicant finds no teaching or suggestion in Sakaguchi or the other prior art of record for the use of such shells." However, according to Merriam-Webster's Online Dictionary, 10th Edition, a shell is interpreted as the outside covering. Therefore, a shell of mannequin includes the outside surface of the mannequin, or the skin of the mannequin, or the covering around the mannequin. The shell of mannequin can be either a part of the surface of the mannequin or a part of the covering surrounding the mannequin. In column 21, lines 35-63, Sakaguchi further discloses the pattern preparing system 40 for generating a plurality of patterns and for deforming the 3D image of the standard figure to generate an individual figure model and for generating a plurality of patterns for the garment fitted on the human model. The triangular patches form ***the outside surface*** of the standard figure model and the triangle patches form ***the outside surface*** of the individual figure model. The triangular patches define the outside surface to the figure models and therefore the triangular patches for each surface define shells of each figure model (col. 25, lines 1-67; col. 30, lines 24-65).

Clearly, Sakaguchi discloses constraining triangle patches of the garment to reside **within or outside** of the triangle patches of the garment defined around the mannequin in the rendering frame. Sakaguchi also discloses constraining triangle patches of the garment to reside outside of

the triangle patches of the outside surface of the human model defined around the mannequin in the rendering frame (col. 25, lines 1-67; col. 30, lines 24-65).

Therefore, Sakaguchi at least suggests the claim limitation of "the shell defined around the mannequin" because Sakaguchi discloses the shape of the garment (as broken into triangle patches) as fitted into the shape of the human model (col. 25, lines 1-67; col. 30, lines 24-65) wherein the shape of the human model are defined by the triangle patches which is the shell defined around the mannequin along the outside surface of the mannequin.

Therefore, it would have been obvious to incorporate the shell defined around or within the surface of the mannequin. Doing so would enable a precise definition of the shape and structure of the human model allowing simulation and calculation of the collisional deformations when the respective patterns are pressed against the corresponding portions based on the information on the garment (column 31, lines 21 to column 33, line 38).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakaguchi U.S. Patent No. 6,310,627 (hereinafter Sakaguchi).

Re claims 1 and 38, Sakaguchi teaches a method for producing an image of a

computer-simulated mannequin wearing a garment as defined by selected mannequin and garment parameter values, comprising generating objects corresponding to a representative mannequin and a garment placed in a simulation scene within a three-dimensional modeling environment (e.g., col. 30, lines 57 to col. 33, lines 38), simulating draping and collision of the garment with the mannequin within the simulation scene to generate a three-dimensional rendering frame of the mannequin wearing the garment (e.g., col. 30, lines 57 to col. 33, lines 38), constraining portions of the garment to reside within or outside of particular shells defined around the mannequin in the rendering frame (the shape of the garment as fitted into the shape of the human model; *see* e.g., col. 25, lines 1-67; col. 30, lines 24-65), and rendering an image from the rendering frame (e.g., col. 31, lines 21-55). In other words, Sakaguchi teaches displaying a system and method for generating a three-dimensional image representing a stereoscopic shape of a garment when the garment is put on a three-dimensional object such as a person's figure. The system and method comprise generating a 3D image of an object model corresponding to the person's figure; inputting information on the person's figure and a try-on garment; arranging the images of the respective patterns of the garment in corresponding portions of the 3D image of the object model, three-dimensionally deforming the images of the respective patterns by calculating collisional deformations when the respective patterns are pressed against the corresponding portions based on the information on the garment, and generating a stereoscopic image of the garment by connecting the deformed 3D images of the respective patterns based on the information on the garment. Moreover, Sakaguchi teaches rendering the garment animation images on the three-dimensional character images and simulating a deformation in the garment caused by the collision of the human model and the garment when the human model is moved

(column 31, lines 21 to column 33, line 38). The collision and animation of the garment with respect to the human model correspond to the draping and collision of the garment with the mannequin wherein the patterns and deformation parameters affects the draping and collision of the garment with the human model.

However, Sakaguchi does not specifically teach the claim limitation of "the shell defined around the mannequin".

In column 21, lines 35-63, Sakaguchi further discloses the pattern preparing system 40 for generating a plurality of patterns and for deforming the 3D image of the standard figure to generate an individual figure model and for generating a plurality of patterns for the garment fitted on the human model. The triangular patches form ***the outside surface*** of the standard figure model and the triangle patches form ***the outside surface*** of the individual figure model. The triangular patches define the outside surface to the figure models and therefore the triangular patches for each surface define shells of each figure model.

Clearly, Sakaguchi discloses constraining triangle patches of the garment to reside **within or outside** of the triangle patches of the garment defined around the mannequin in the rendering frame. Sakaguchi also discloses constraining triangle patches of the garment to reside outside of the triangle patches of the outside surface of the human model defined around the mannequin in the rendering frame.

Therefore, Sakaguchi at least suggests the claim limitation of "the shell defined around the mannequin" because Sakaguchi discloses the shape of the garment (as broken into triangle patches) as fitted into the shape of the human model (col. 25, lines 1-67; col. 30, lines 24-65)

wherein the shape of the human model are defined by the triangle patches which is the shell defined around the mannequin along the outside surface of the mannequin.

Therefore, it would have been obvious to incorporate the shell defined around or within the surface of the mannequin. Doing so would enable a precise definition of the shape and structure of the human model allowing simulation and calculation of the collisional deformations when the respective patterns are pressed against the corresponding portions based on the information on the garment (column 31, lines 21 to column 33, line 38).

Re claims 2, 35, and 43, Sakaguchi discloses the rendered image is used to form a visual image on a computer display device (col. 27, lines 25-67; column 31, lines 21-55; column 33, lines 25-38). Sakaguchi teaches rendering the garment animation images on the character images and simulating a deformation in the garment in a three-dimensional simulation scene wherein the animation involves a 3D human model wearing a garment from the external storage device and the scene is rendered frame by frame and thereby simulating the wearing style of the human model as the scene is rendered.

Re claims 3-4, 6-9, 13, 30-31, 33, and 36, Sakaguchi discloses generating rendering frames containing mannequin or garment objects as defined by selected parameter values by shape blending corresponding objects of previously generated rendering frames (column 25, lines 1-67; column 31, lines 21 to column 33, line 38). Applicant admits, on applicant's response dated June 28, 2004, that shape blending refers to a technique used to change mannequin or garment dimensions by changing the dimension parameters in a previously generated rendering frame. However, Sakaguchi discloses changing the deformation parameters (a specific

movement of the human model such as a leg or a hand gesture is moved and a selected number of parameters such as size information including height, shoulder, width, chest size associated with the selected body part is inputted via the input device to generate 3D animation images in which the human model moves in a specific manner; column 30, lines 37-65) of the garment in response to the change in dimensions of the human model and thereby simulating a corresponding frame of the animation image of the garment and thus simulating a deformation in the garment caused by the collision of the human model and the garment when the human model is moved (column 31, lines 21 to column 33, line 38).

Re claims 5, 23, 42 and 45, Sakaguchi discloses the two-dimensional images are rendered from a rendering frame using a plurality of camera positions (column 25, lines 42-67; column 26, lines 1-42; col. 27, lines 54-67). Applicant admits that the camera referred to herein is not a real camera and refers only to a viewing position for rendering the image from the three-dimensional rendering frame. However, Sakaguchi teaches digitizing a three-dimensional image so that the 2D images of the garment patterns are generated with respect to a reference line or a viewpoint position. **Sakaguch further teaches *photographing a 3D model in motion along time axis at suitable angles* and under suitable lighting and the movements of the person in the three-dimensional virtual environment can be stereoscopically viewed from a variety of angles** (column 29, lines 30-36).

Re claims 10-12 and 39, Sakaguchi discloses the separate rendering frames are combined into a composite two-dimensional image using Z-coordinates of the objects (col. 32, lines 7-16; col. 30, lines 37-65). First of all, Sakaguchi discloses combining the garment animation image and the human animation image (column 30, lines 37-67 to col. 31, lines 1-10).

Sakaguchi further discloses the z coordinates in the Z buffer method for combining a plurality of patterns or frames to form a two-dimensional image (column 25, lines 42-67; column 26, lines 1-42; col. 27, lines 54-67; column 29, lines 30-36). **Sakaguchi teaches comparing (z coordinates of) the lattice points of the human model and the garment to generate a two-dimensional image** (col. 25, lines 1-67).

Re claims 14-15, Sakaguchi discloses a network and a processor-executable instructions (col. 27, lines 54-67).

Re claims 16, 19, 29, and 32, the limitations of claims 16, 19, 29, and 32 are analyzed as discussed with respect to claim 1 above except for generating rendering frames containing mannequin or garment objects as defined by selected parameter values by shape blending corresponding objects of previously generated rendering frames. Applicant admits, on applicant's response dated June 28, 2004, that shape blending refers to a technique used to change mannequin or garment dimensions by changing the dimension parameters in a previously generated rendering frame. However, Sakaguchi discloses changing the deformation parameters (a specific movement of the human model such as a leg or a hand gesture is moved and a selected number of parameters such as size information including height, shoulder, width, chest size associated with the selected body part is inputted via the input device to generate 3D animation images in which the human model moves in a specific manner; column 30, lines 37-65) of the garment in response to the change in dimensions of the human model and thereby simulating a corresponding frame of the animation image of the garment and thus simulating a deformation in the garment caused by the collision of the human model and the garment when the human model is moved (column 31, lines 21 to column 33, line 38).

Re claims 17-18, 20-22, 24-28, 37, and 40-41, Sakaguchi discloses a plurality of garment patterns that are connected together during the draping and collision simulation and further wherein the garment parameters including the normal lines of the surface of the garment (col. 31, lines 55-67). Referring to the claim 18 and 24, Sakaguchi further discloses wearing multiple garments from the garment animation image generator around the 3D images of the human model and defining parts of the human image model and garments so that the deformation in the garment caused by the collision of the garment and the human model is simulated (column 32, lines 8-65). Referring to the claim 20, Sakaguchi discloses that patterns for the garment images are combinable along the outside surface of the human model into the composite animated image. In column 21, lines 35-63, Sakaguchi further discloses the pattern preparing system 40 for generating a plurality of patterns and for deforming the 3D image of the standard figure to generate an individual figure model and for generating a plurality of patterns for the garment fitted on the human model. The triangular patches form ***the outside surface*** of the standard figure model and the triangle patches form ***the outside surface*** of the individual figure model. The triangular patches define the outside surface to the figure models and therefore the triangular patches for each surface define shells of each figure model. Clearly, Sakaguchi discloses constraining triangle patches of the garment to reside **within or outside** of the triangle patches of the garment defined around the mannequin in the rendering frame. Sakaguchi also discloses constraining triangle patches of the garment to reside outside of the triangle patches of the outside surface of the human model defined around the mannequin in the rendering frame. Referring to the claim 21, Applicant admits, on applicant's response dated June 28, 2004, that shape blending refers to a technique used to change mannequin or garment dimensions by

changing the dimension parameters in a previously generated rendering frame. However, Sakaguchi discloses changing the deformation parameters (a specific movement of the human model such as a leg or a hand gesture is moved and a selected number of parameters such as size information including height, shoulder, width, chest size associated with the selected body part is inputted via the input device to generate 3D animation images in which the human model moves in a specific manner; column 30, lines 37-65) of the garment in response to the change in dimensions of the human model and thereby simulating a corresponding frame of the animation image of the garment and thus simulating a deformation in the garment caused by the collision of the human model and the garment when the human model is moved (column 31, lines 21 to column 33, line 38). Referring to the claim 22, Sakaguchi teaches mapping the pieces of information on the shape, material, color, pattern and the like of the desired garment for this garment before the 2D images of the patterns for the special garment is rendered.

Referring to the claims 26 and 40-41, Sakaguchi discloses changing the deformation parameters (a specific movement of the human model such as a leg or a hand gesture is moved and a selected number of parameters such as size information including height, shoulder, width, chest size associated with the selected body part is inputted via the input device to generate 3D animation images in which the human model moves in a specific manner; column 30, lines 37-65) of the garment in response to the change in dimensions of the human model and thereby simulating a corresponding frame of the animation image of the garment and thus simulating a deformation in the garment caused by the collision of the human model and the garment when the human model is moved (column 31, lines 21 to column 33, line 38). Referring to the claim 27, a different version of the animated image of the human model and a different version of the

animated image of the garment are rendered frame by frame wherein the image of the garment is fitted to the image of the human model in a 3D space. Referring to the claim 28, Sakaguchi discloses the rendered image is used to form a

visual image on a computer display device (col. 27, lines 25-67; column 31, lines 21-55; column 33, lines 25-38). Sakaguchi teaches rendering the garment animation images on the character images and simulating a deformation in the garment in a three-dimensional simulation scene wherein the animation involves a 3D human model wearing a garment from the external storage device and the scene is rendered frame by frame and **thereby simulating the wearing style of the human model as the scene is rendered**.

Re claim 34, the limitations of claim 34 are analyzed as discussed with respect to claim 1 above except for a user interface and a repository. Sakaguchi teaches the claimed limitation (col. 31, lines 20-55) when he discloses inputting the kind of the shape of the garment such as a dress or a two-piece suit and inputting the motion data from the motion data input device. As for a repository, Sakaguchi further discloses the computer system thus has a repository including the external storage device 75 or an external storage device 45 storing a plurality of garment images and the garment images generated by the garment animation image generator 7104 and rendering the animation images of human model wearing a dress or garment in walking by combining the **3D images** of the human model and the **stereoscopic images** of the garment frame by frame **by the Z buffer method** successively outputs the image data to the display device 76 (col. 31, lines 20-67 and column 32, lines 1-65) wherein the images of a plurality of patterns for the stereoscopic images of the garment are 2D images (column 23, lines 60-65).

Re claim 44, the limitations of claim 44 are analyzed as discussed with respect to claims 1 and 34 above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (571) 272-7664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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